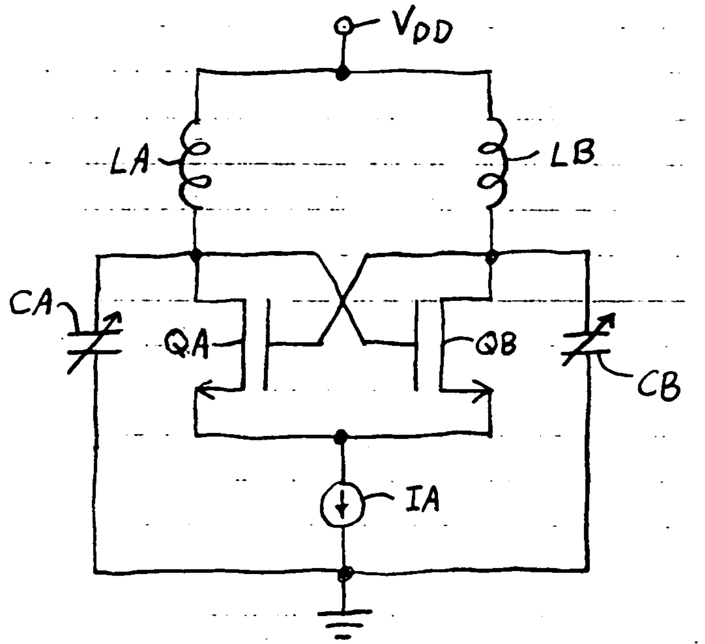


Fig. 1

PRIOR ART

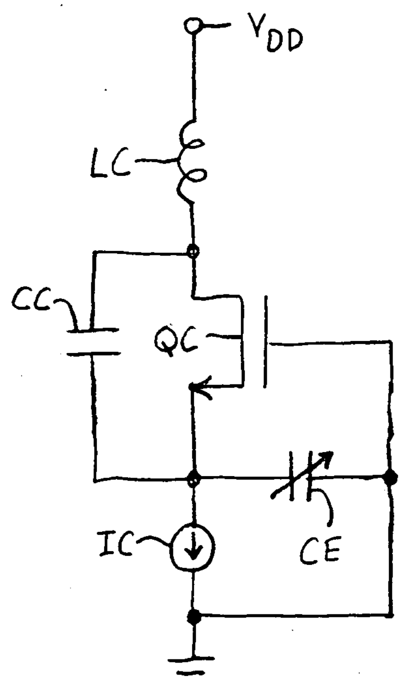


Fig. 2a PRIOR ART

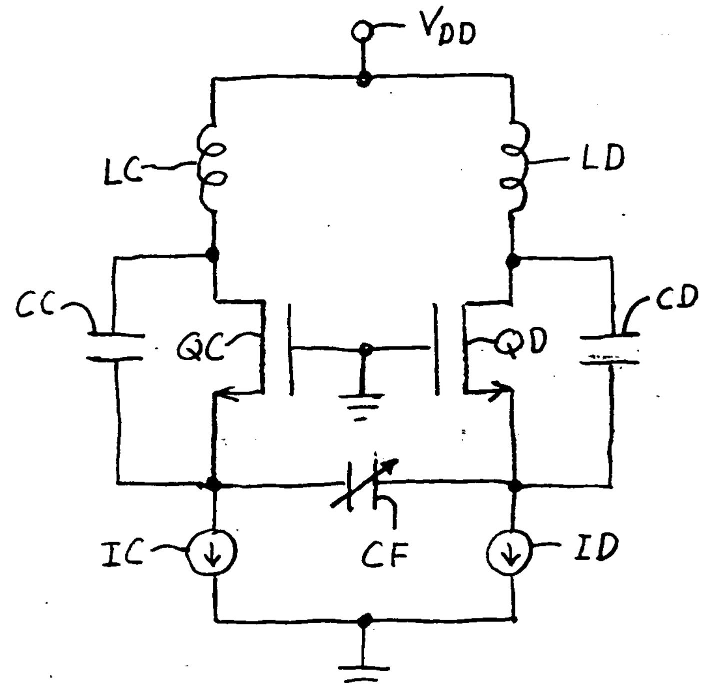


Fig. 2b PRIOR ART

Fig. 3
PRIOR ART

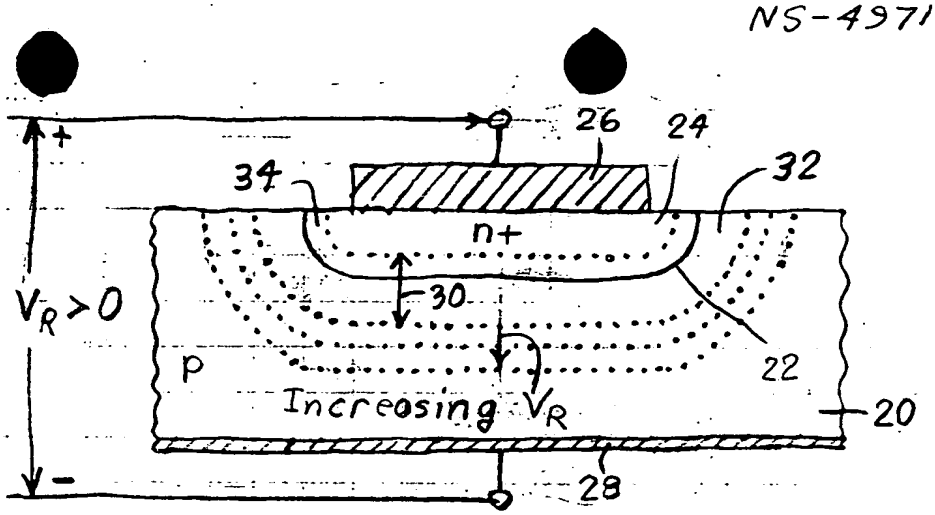


Fig. 4
PRIOR ART

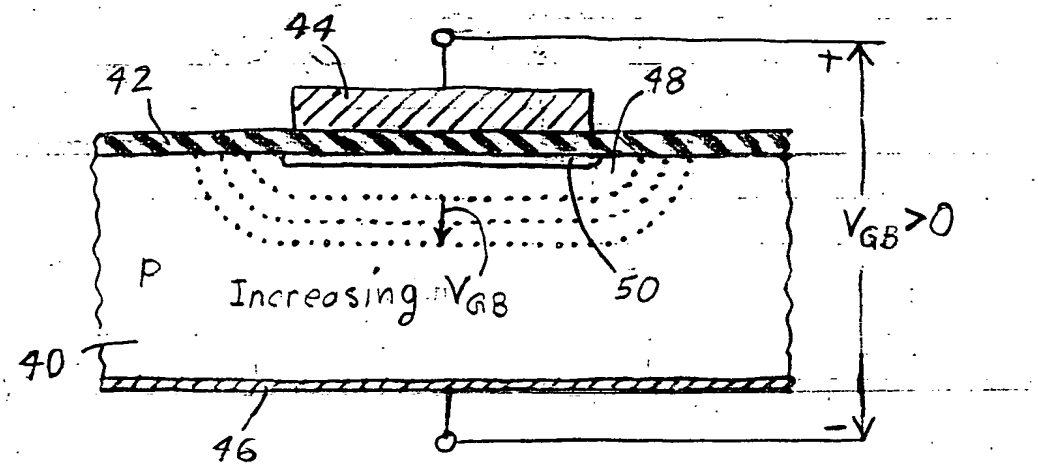
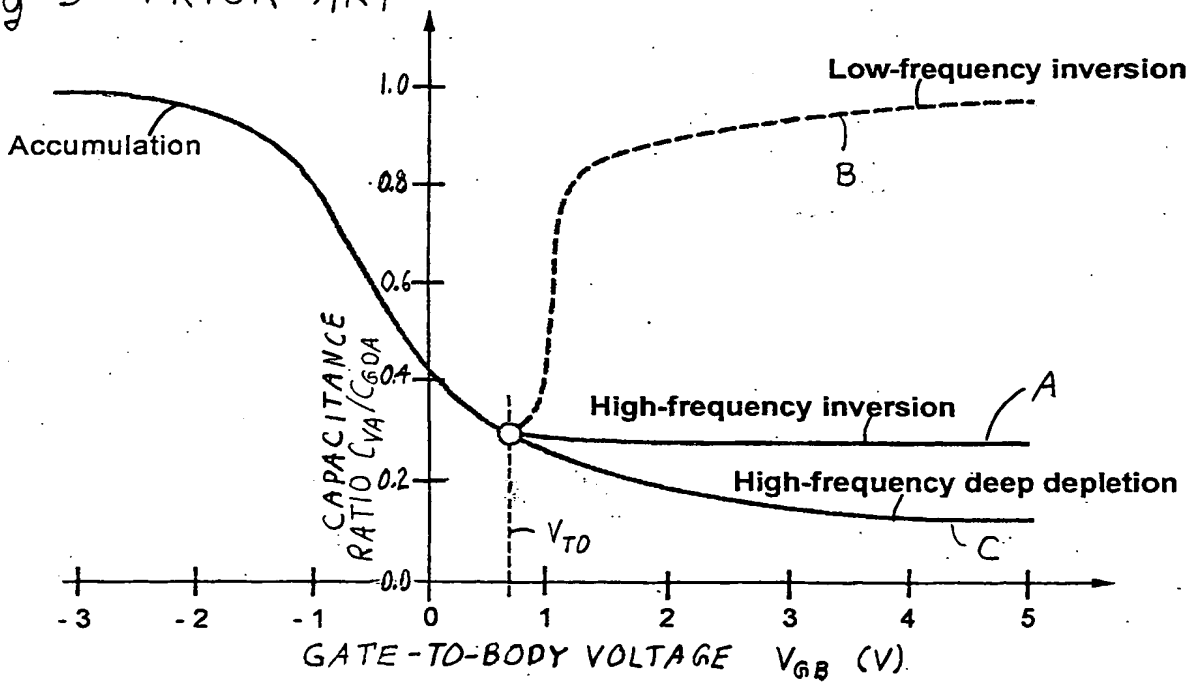


Fig 5 PRIOR ART



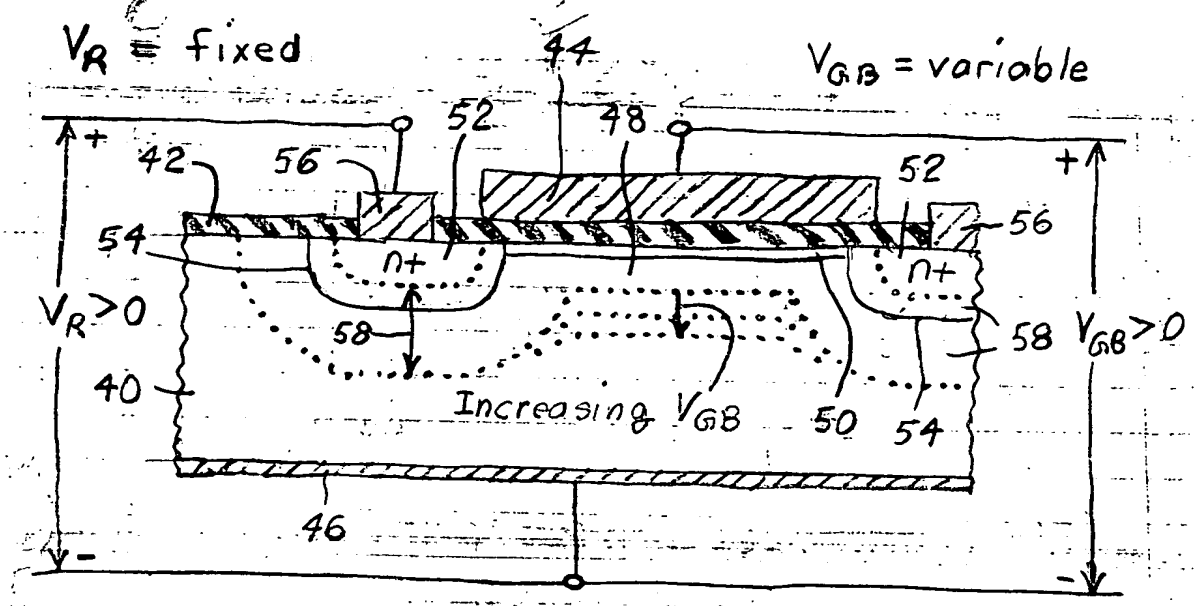


Fig. 6 PRIOR ART

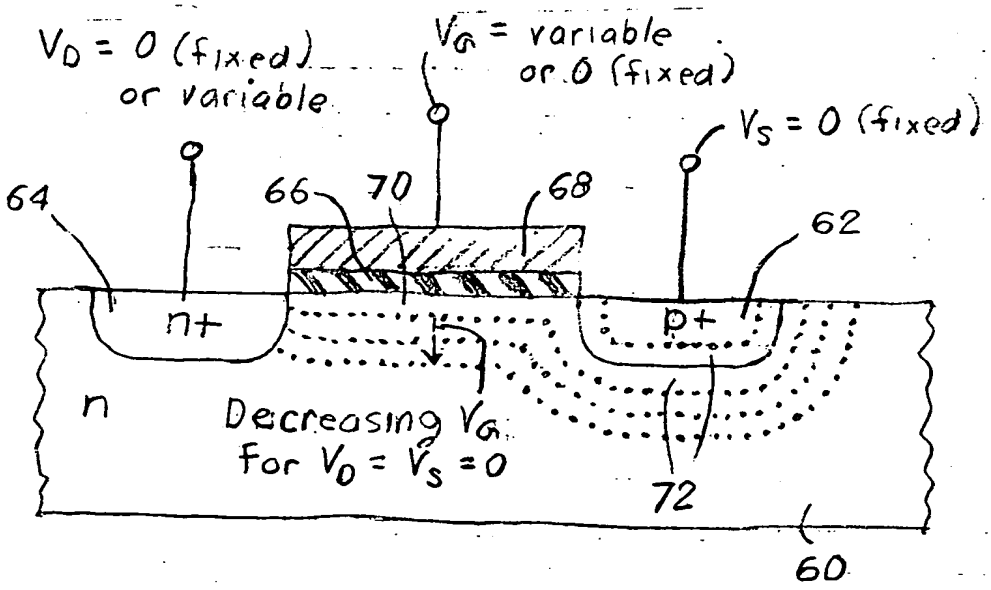


Fig. 7 PRIOR ART

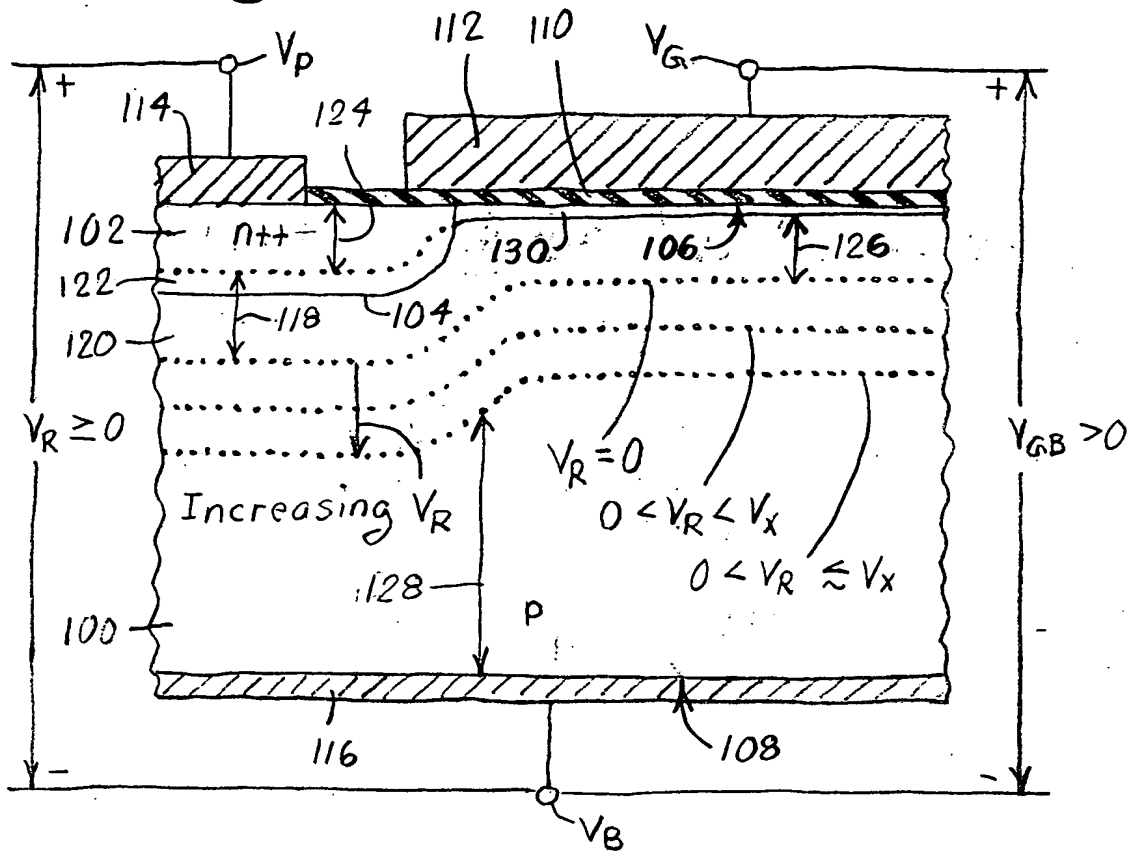


Fig. 8a

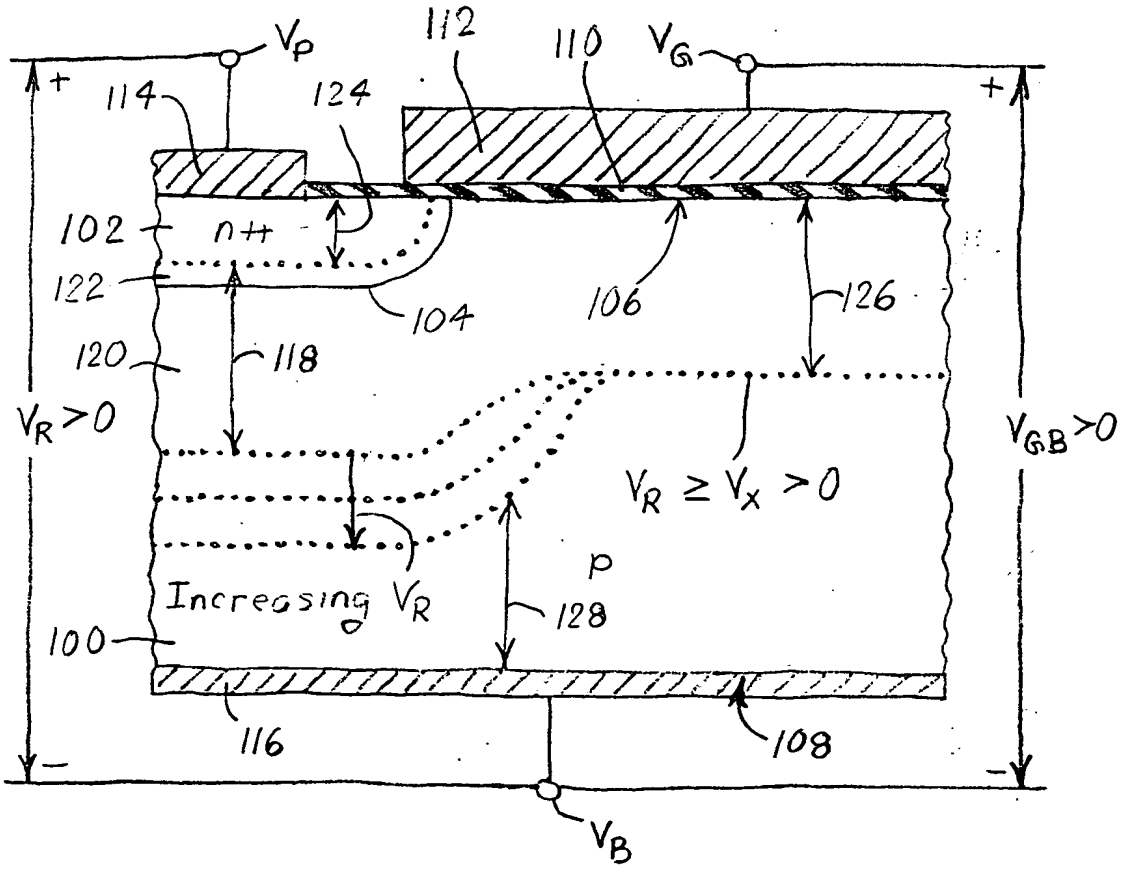


Fig. 8b

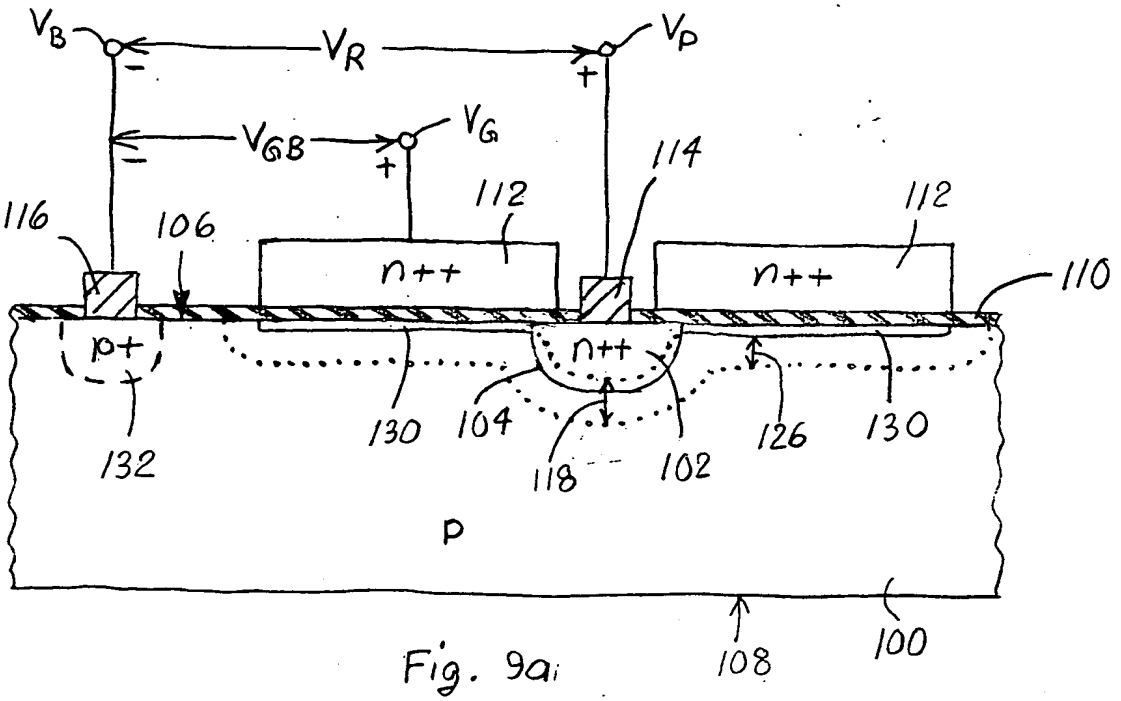


Fig. 9a

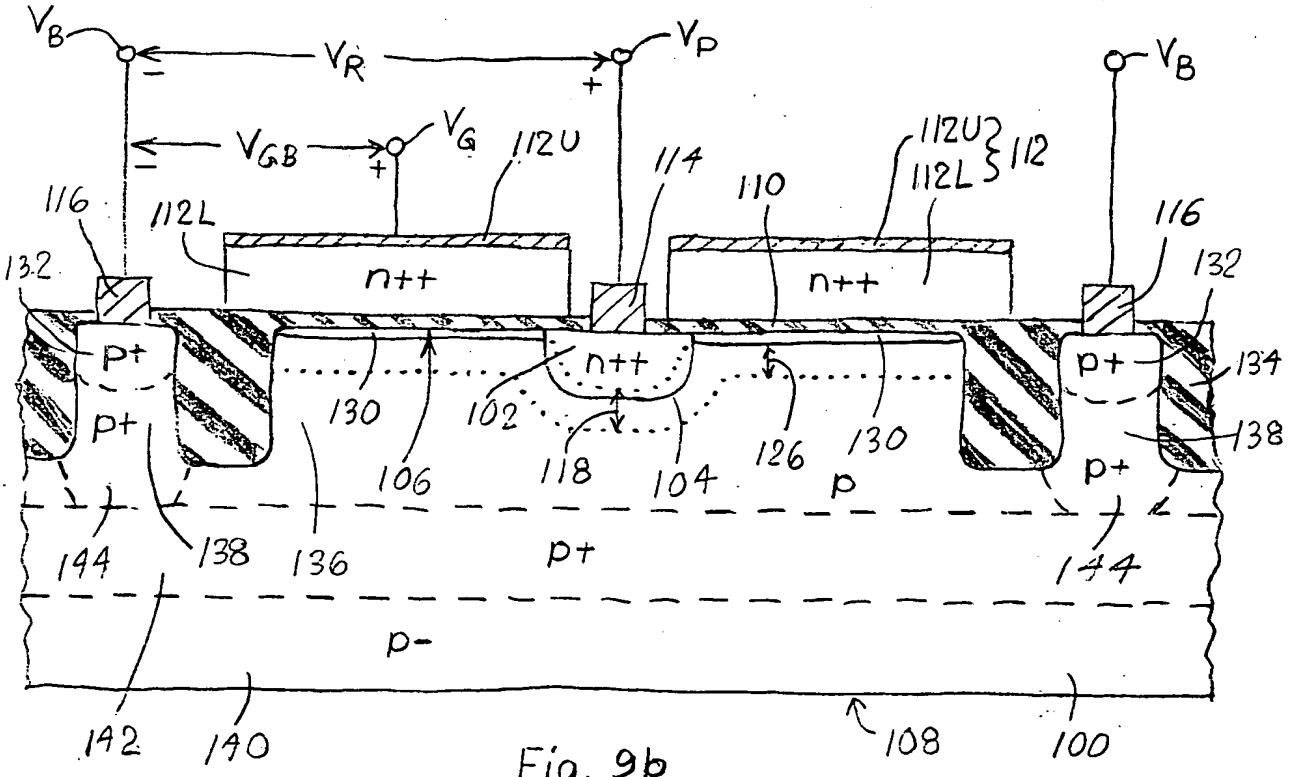


Fig. 9b

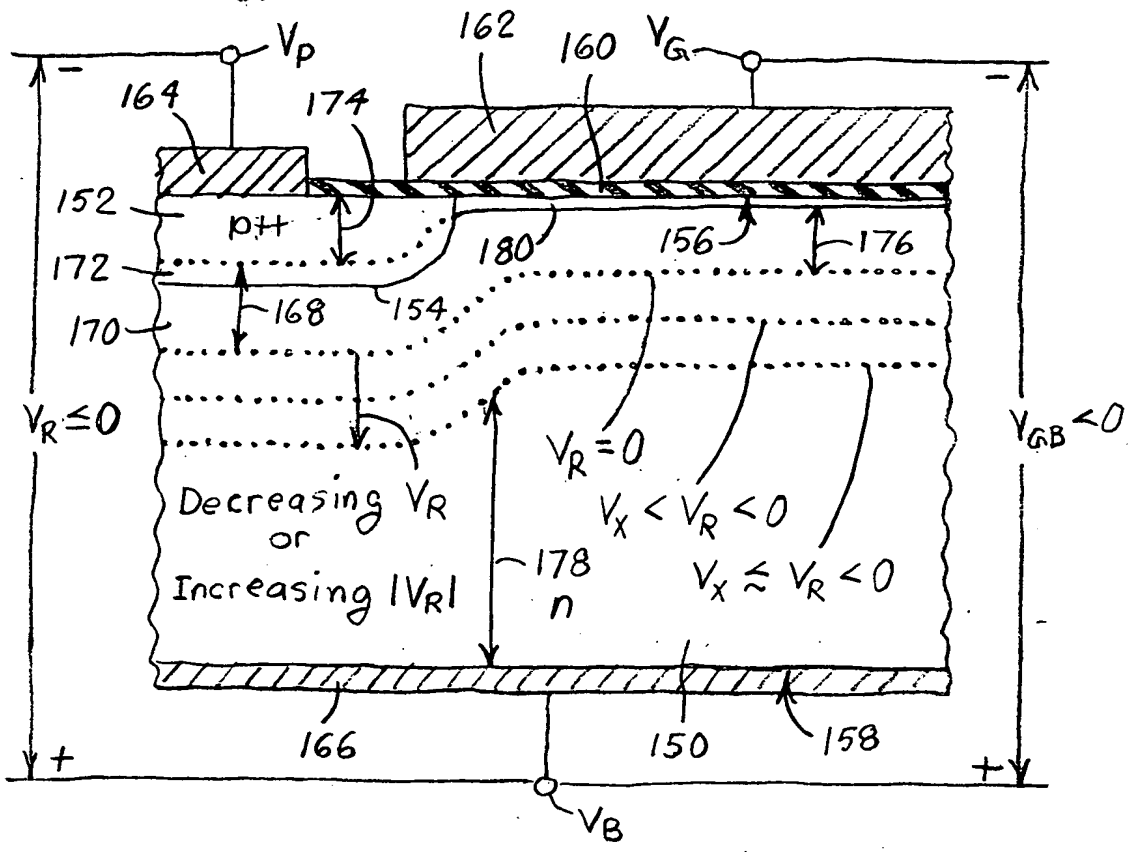


Fig. 10a

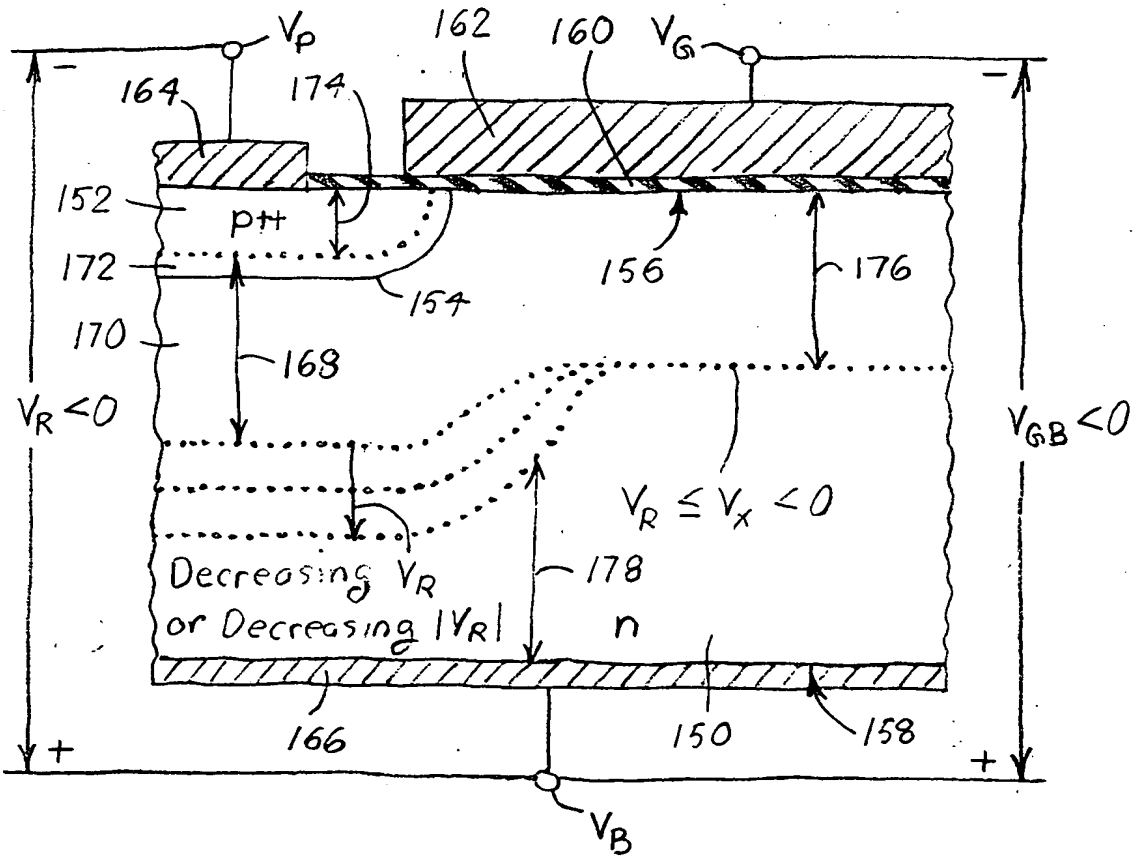


Fig. 10b

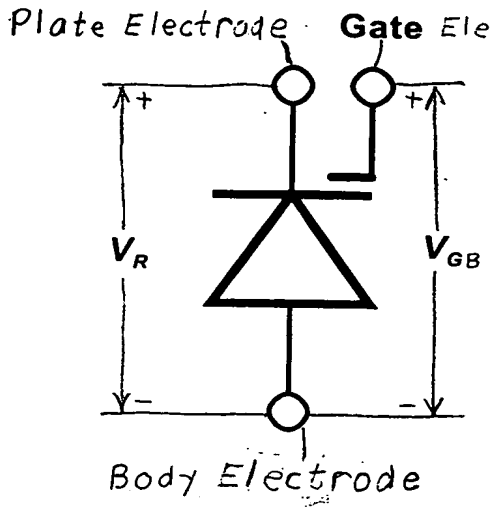


Fig. 11a

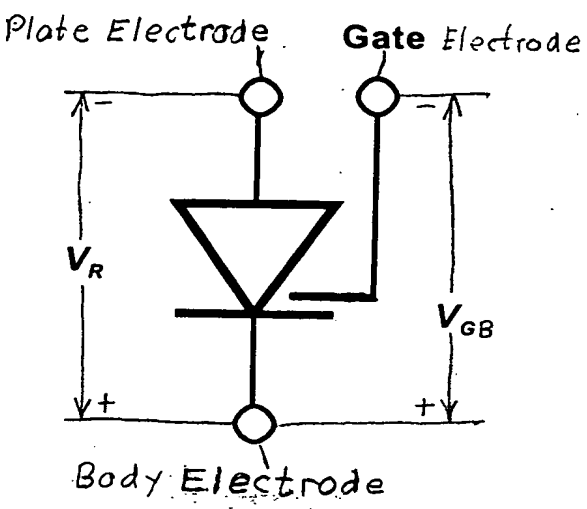


Fig. 11b

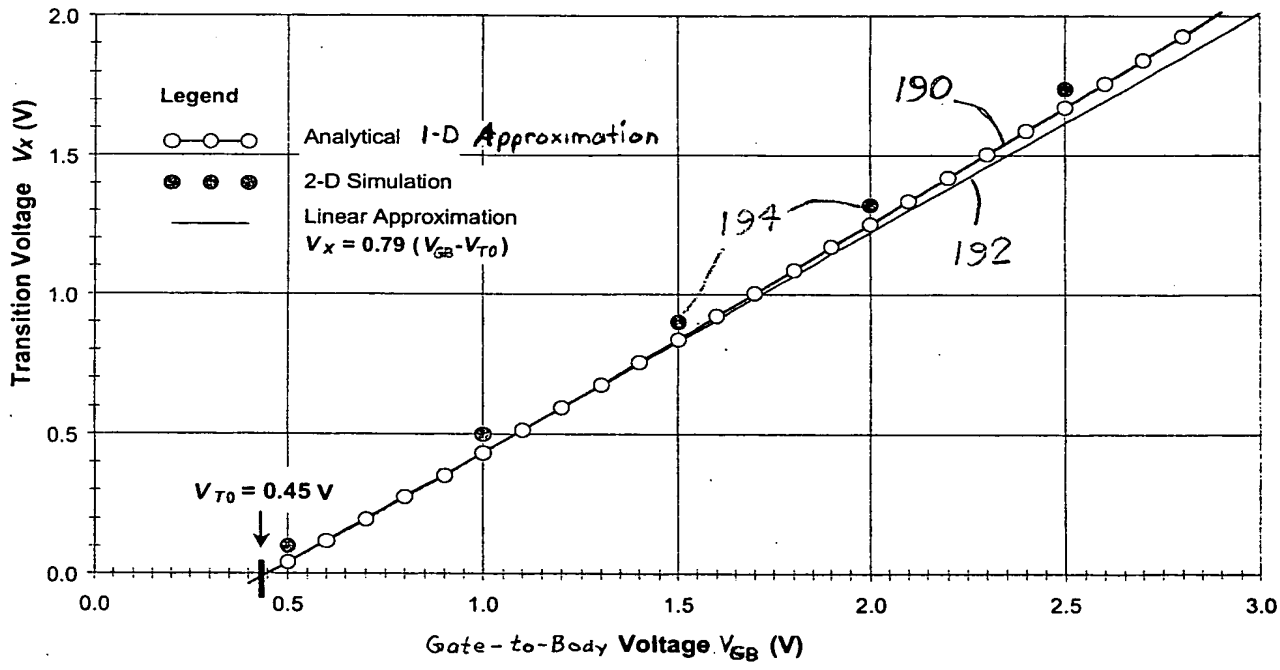


Fig. 12

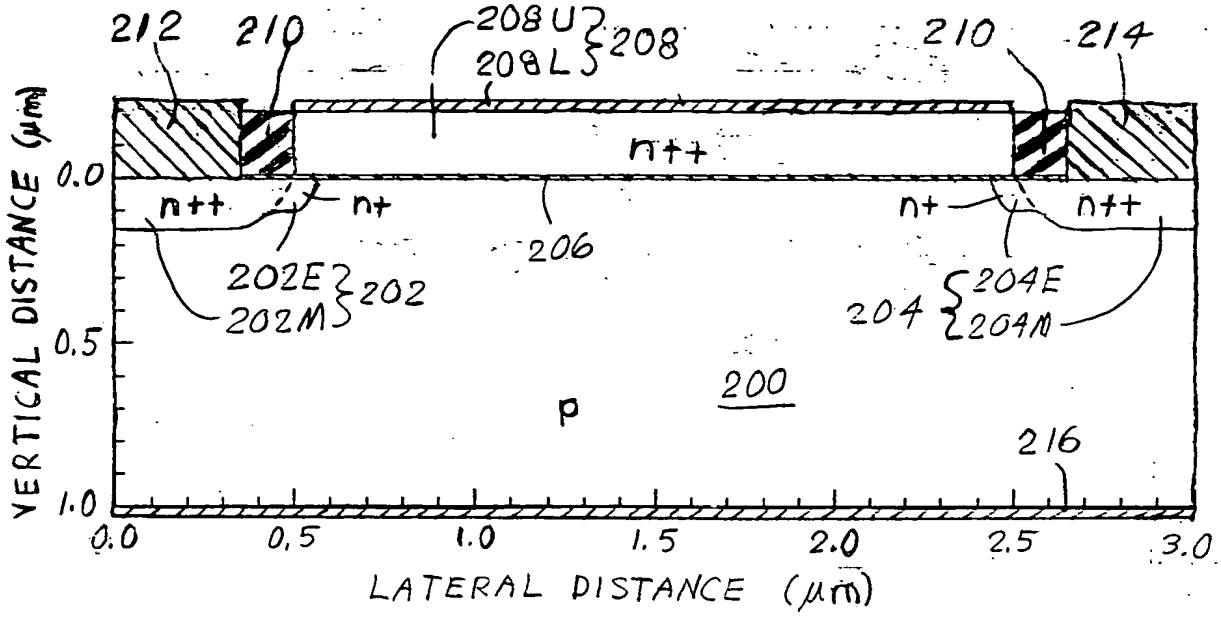

212
210
208U
208L
208
210
214
n++
n++
n+
n+
n++
206
202E
202M
202
204
204E
204M
200
p
216
VERTICAL DISTANCE (μm)
0.0
0.5
1.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
LATERAL DISTANCE (μm)

Fig. 13

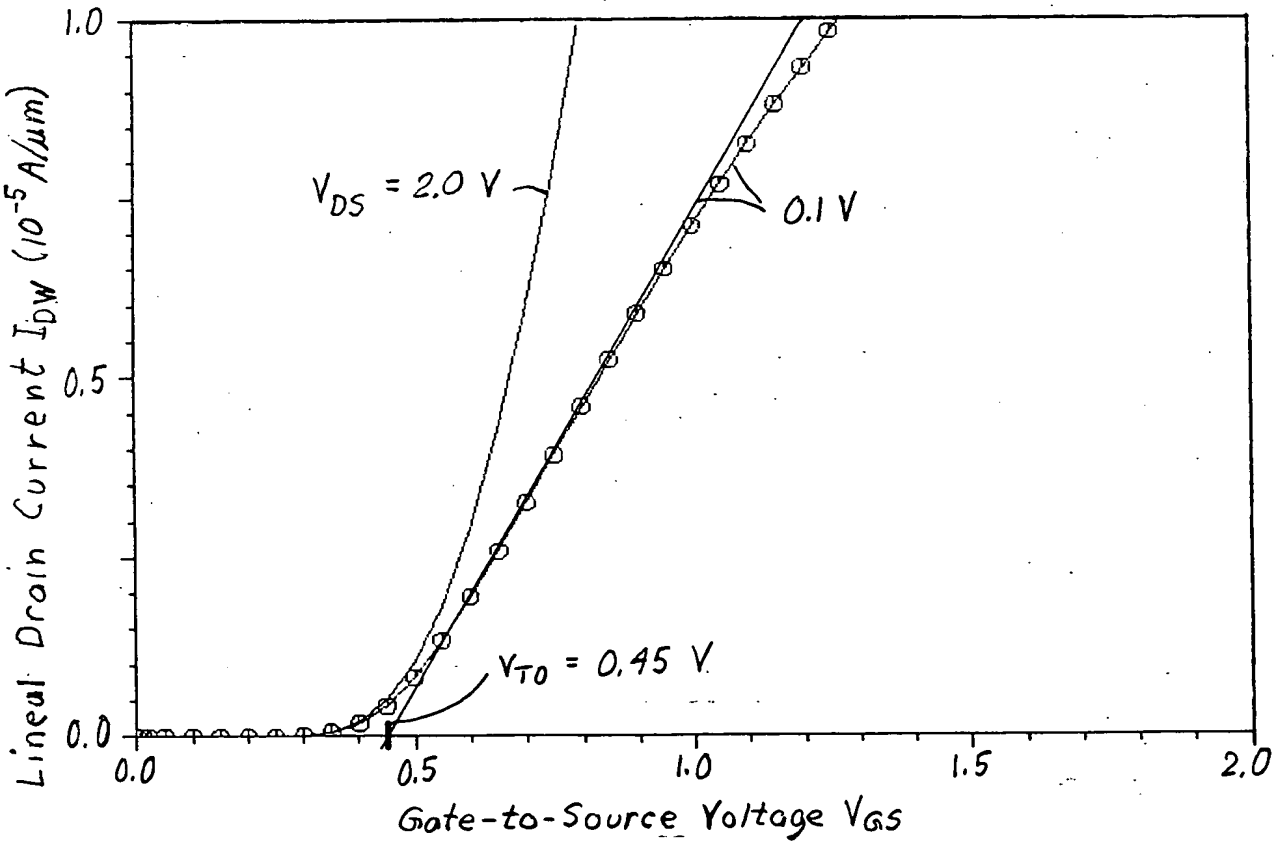

1.0
0.5
0.0
Lineal Drain Current I_{DW} (10^{-5} A/μm)
V_{DS} = 2.0 V
0.1 V
V_{TO} = 0.45 V
0.0
0.5
1.0
1.5
2.0
Gate-to-Source Voltage V_{GS}

Fig. 14

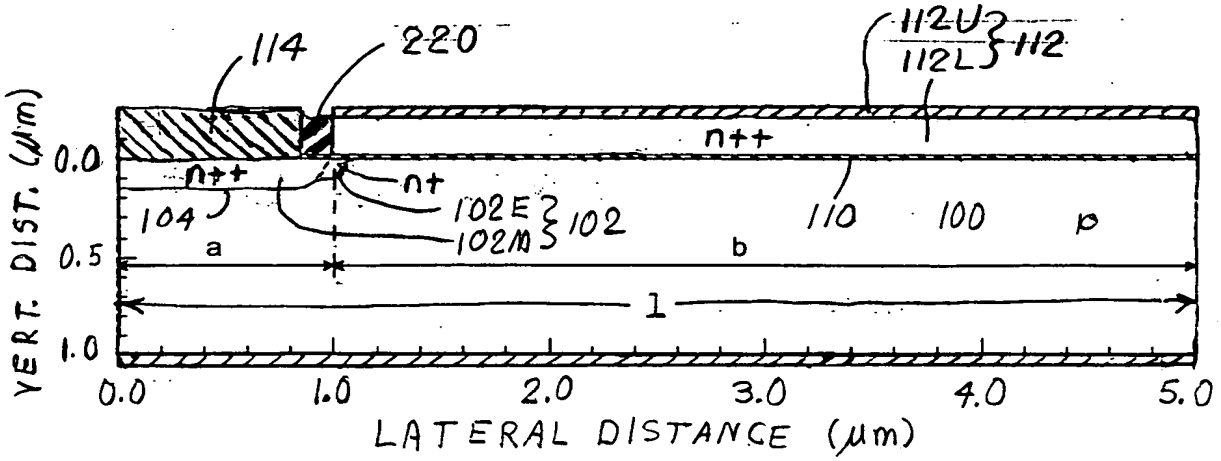

114
220
112U
112L
112
n++
n+
n++
104
102E
102M
102
110
100
p
a
b
l
VERT. DIST. (μm)
0.0
0.5
1.0
0.0
1.0
2.0
3.0
4.0
5.0
LATERAL DISTANCE (μm)

Fig. 15

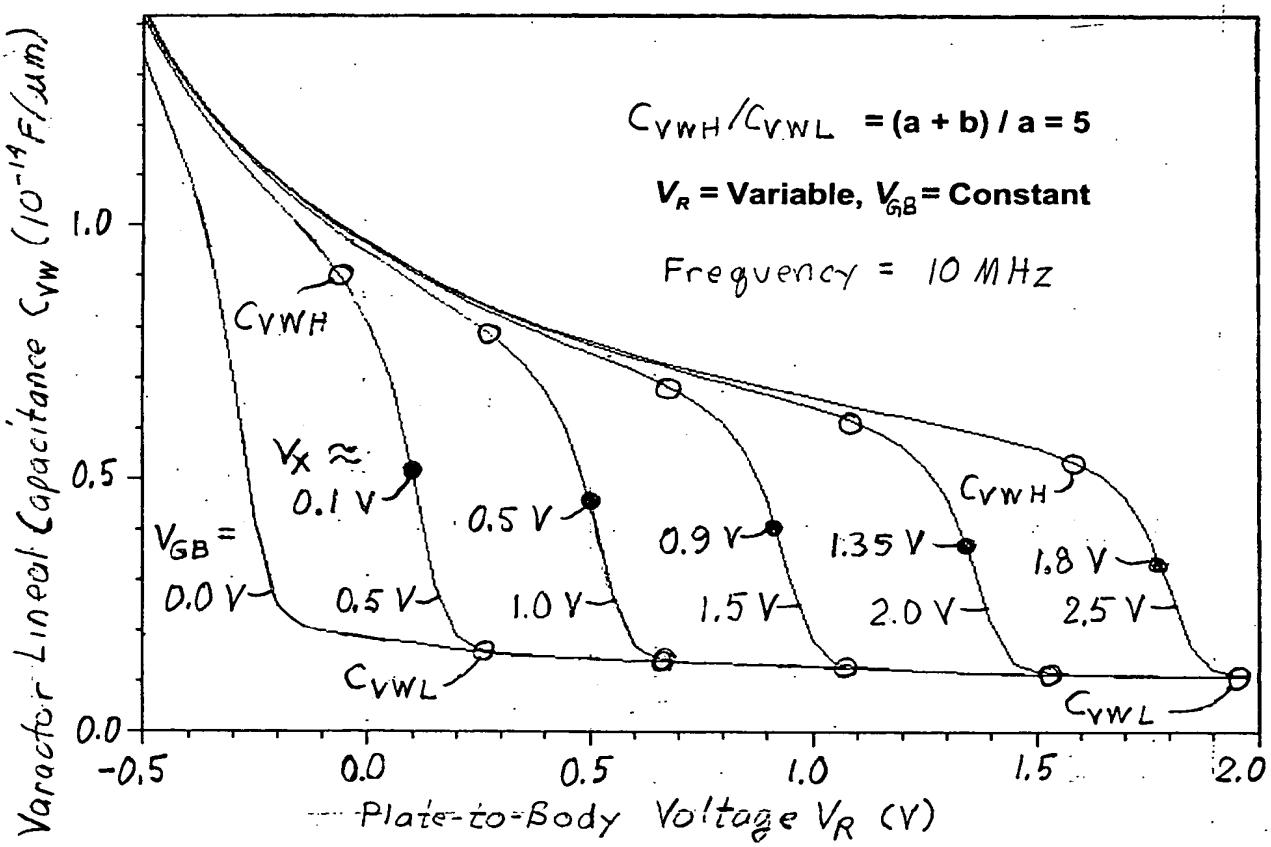

C_{VWH}/C_{VWL} = (a + b) / a = 5
V_R = Variable, V_{GB} = Constant
Frequency = 10 MHz
C_{VWH}
$V_X \approx$ 0.1 V
V_{GB} =
0.0 V
0.5 V
1.0 V
0.5 V
0.9 V
1.5 V
1.35 V
2.0 V
1.8 V
2.5 V
C_{VWL}
C_{VWH}
C_{VWL}
Varactor Lineal Capacitance C_{VW} (10^{-14} F/μm)
1.0
0.5
0.0
-0.5
0.0
0.5
1.0
1.5
2.0
Plate-to-Body Voltage V_R (V)

Fig. 16

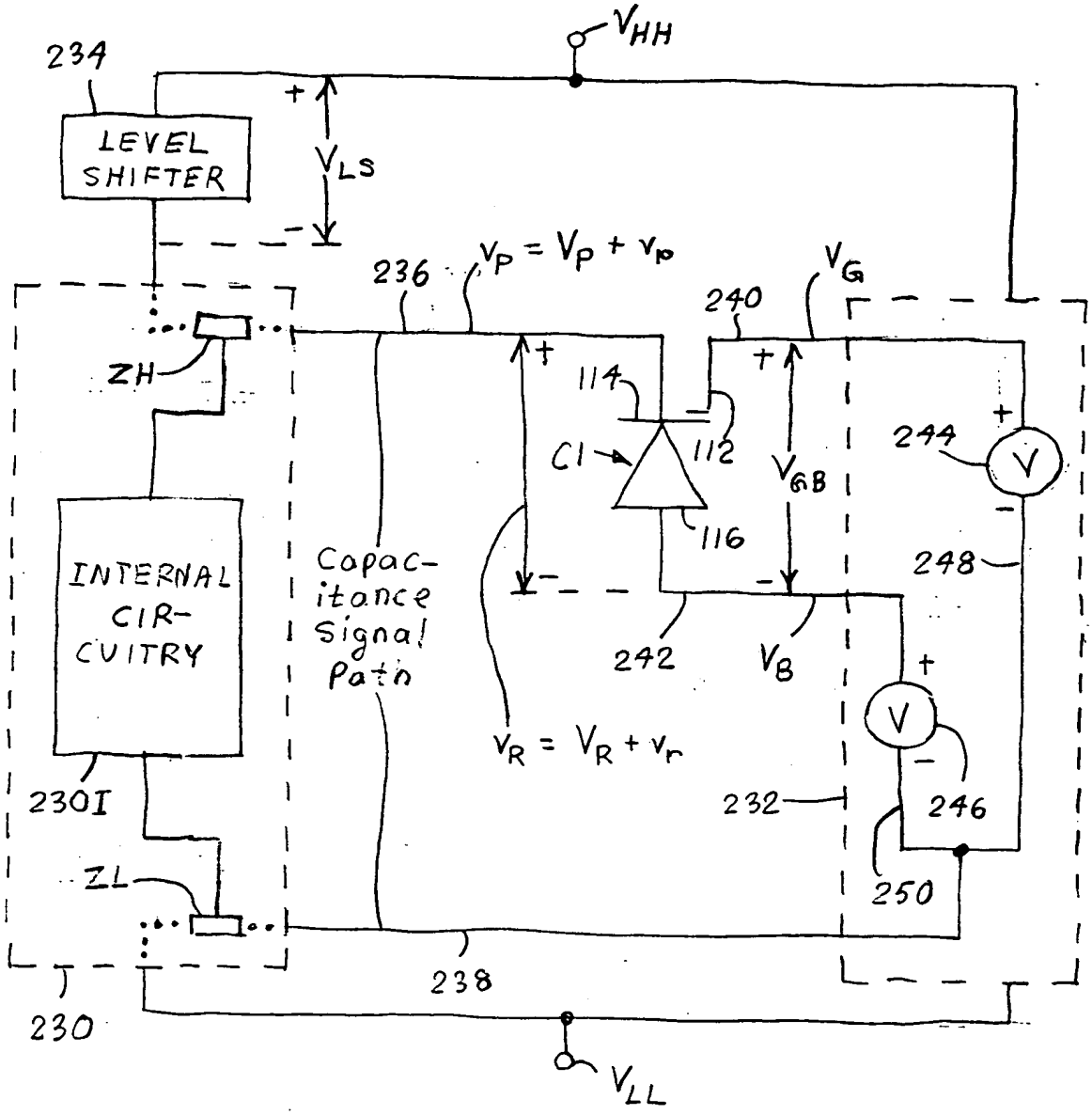

234
LEVEL SHIFTER
V_{HH}
V_{LS}
236
$V_P = V_P + v_p$
240
V_G
ZH
114
112
C1
116
V_{GB}
244
V
248
INTERNAL CIR-CUITRY
Capac-itance Signal Path
242
V_B
$V_R = V_R + v_r$
V
246
232
230I
ZL
250
238
230
V_{LL}

Fig. 17

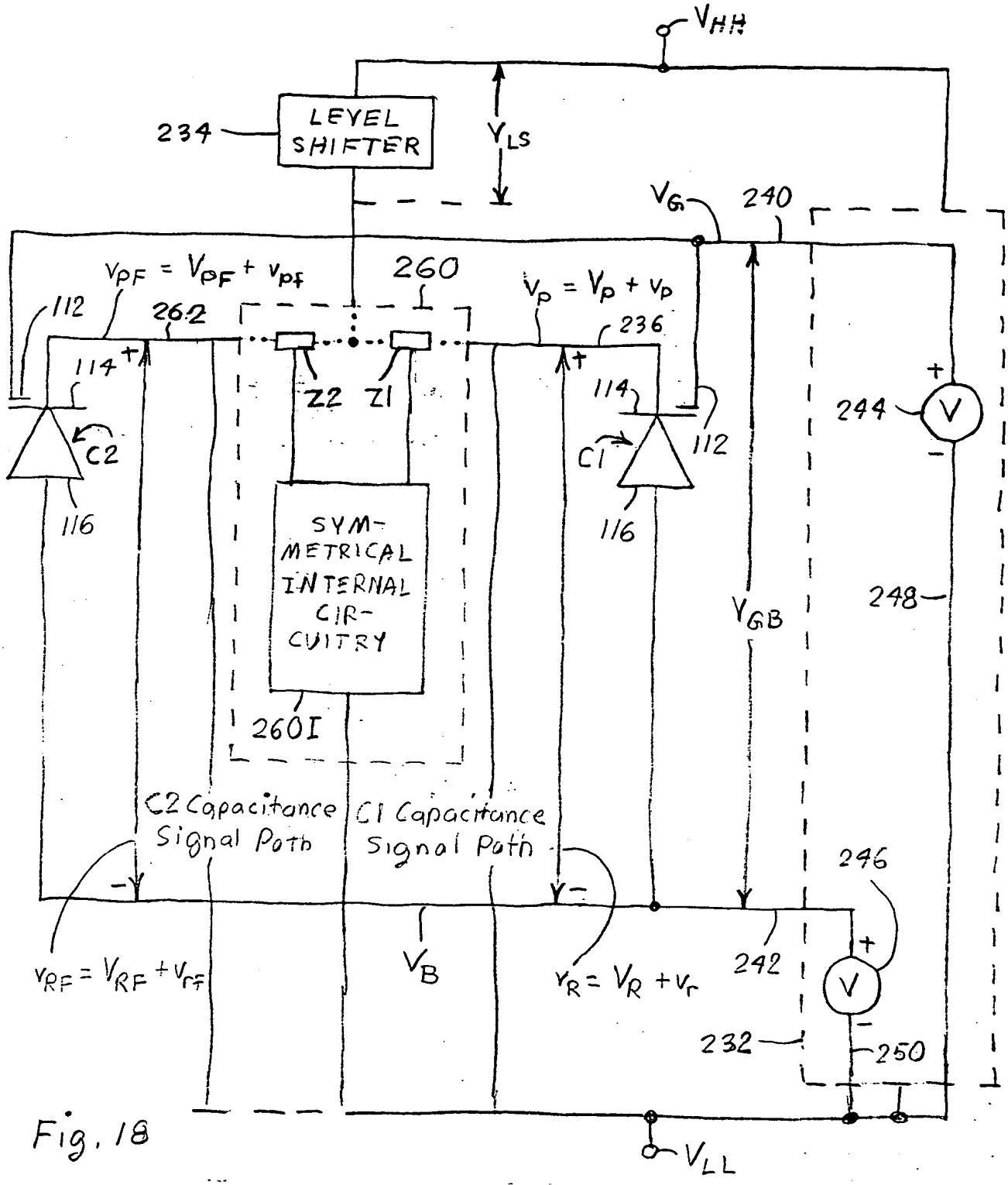


Fig. 18

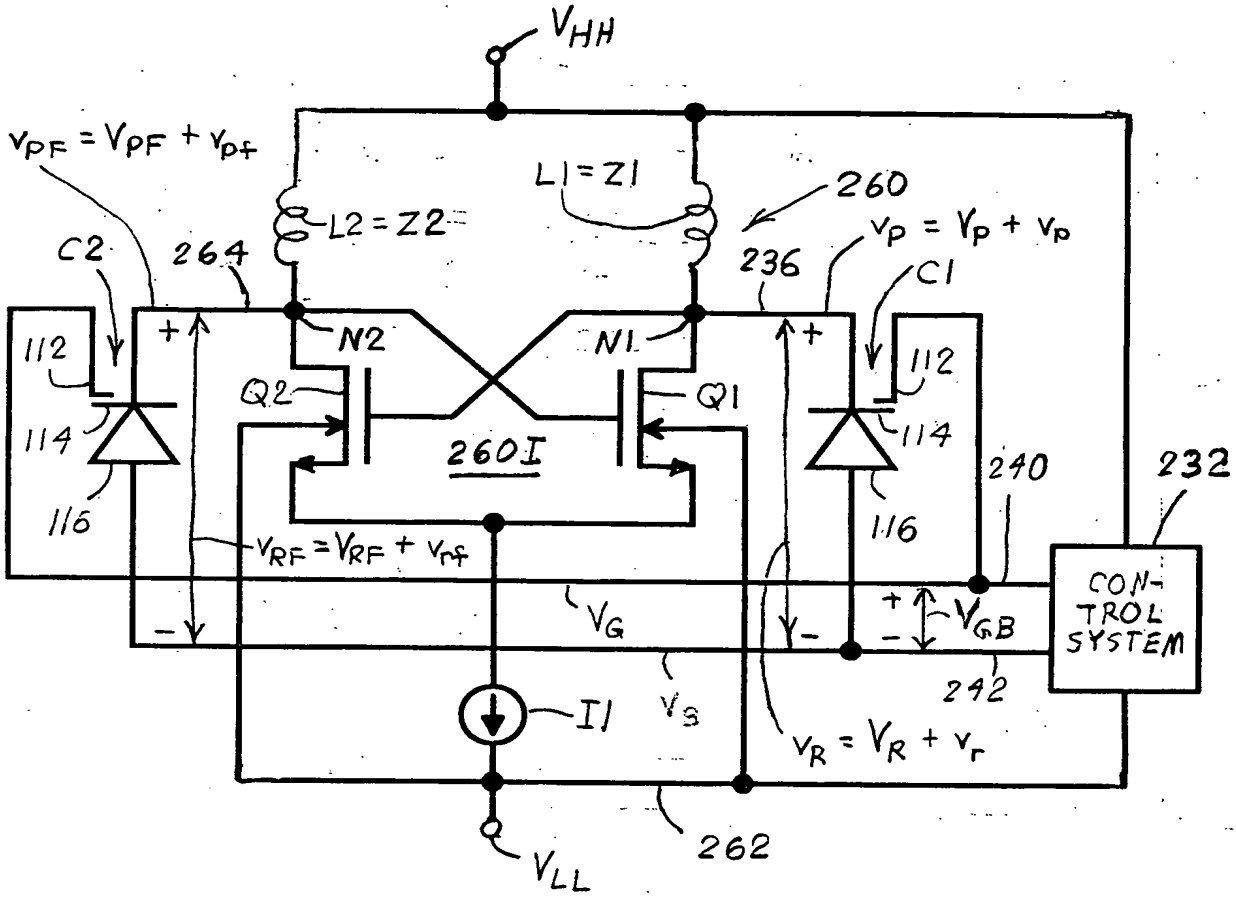

V_{HH}
$V_{PF} = V_{PF} + v_{pf}$
L1 = Z1
L2 = Z2
260
$V_P = V_P + v_p$
C2
264
236
C1
112
N2
N1
112
Q2
Q1
114
260I
114
240
232
116
116
$V_{RF} = V_{RF} + v_{rf}$
V_G
V_{GB}
CON-
TROL
SYSTEM
I1
V_S
242
$V_R = V_R + v_r$
262
V_{LL}

Fig. 19a

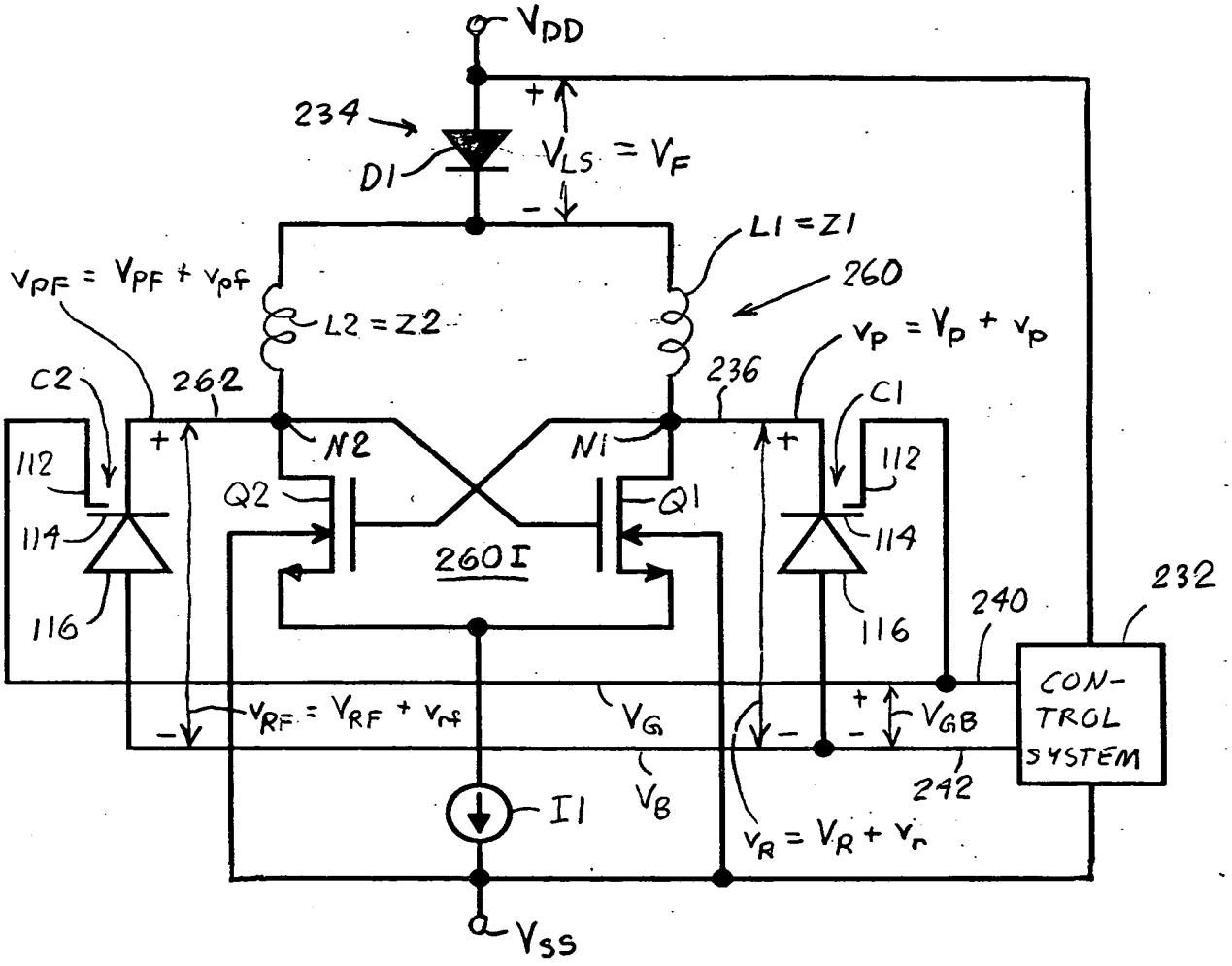

V_{DD}
234
D1
$V_{LS} = V_F$
L1 = Z1
260
$V_{PF} = V_{PF} + v_{pf}$
L2 = Z2
$V_P = V_P + v_p$
C2
262
236
C1
112
N2
N1
112
Q2
Q1
114
260I
114
116
116
240
232
CON-
TROL
SYSTEM
$V_{RF} = V_{RF} + v_{rf}$
V_G
V_{GB}
242
I1
V_B
$v_R = V_R + v_r$
V_{SS}

Fig. 19b

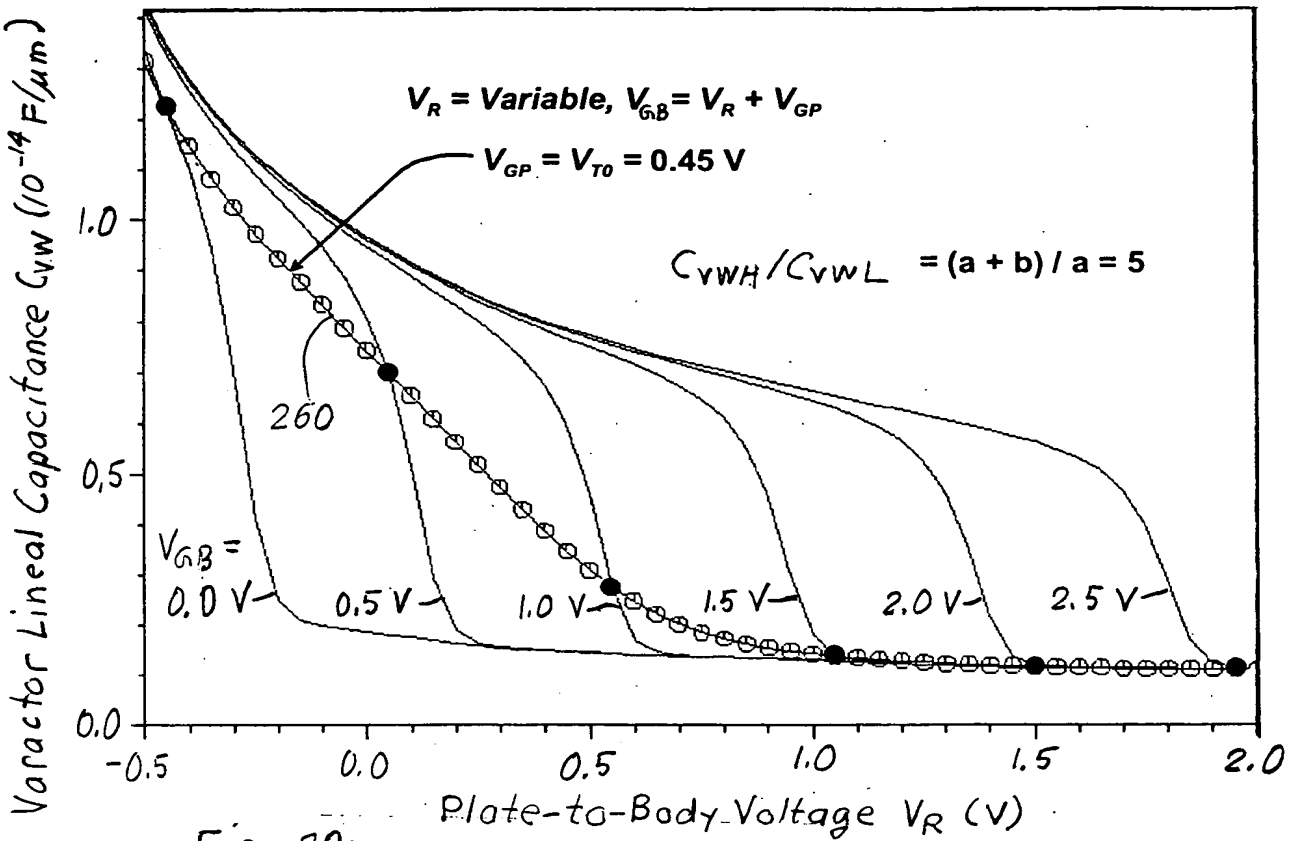


Fig. 20a

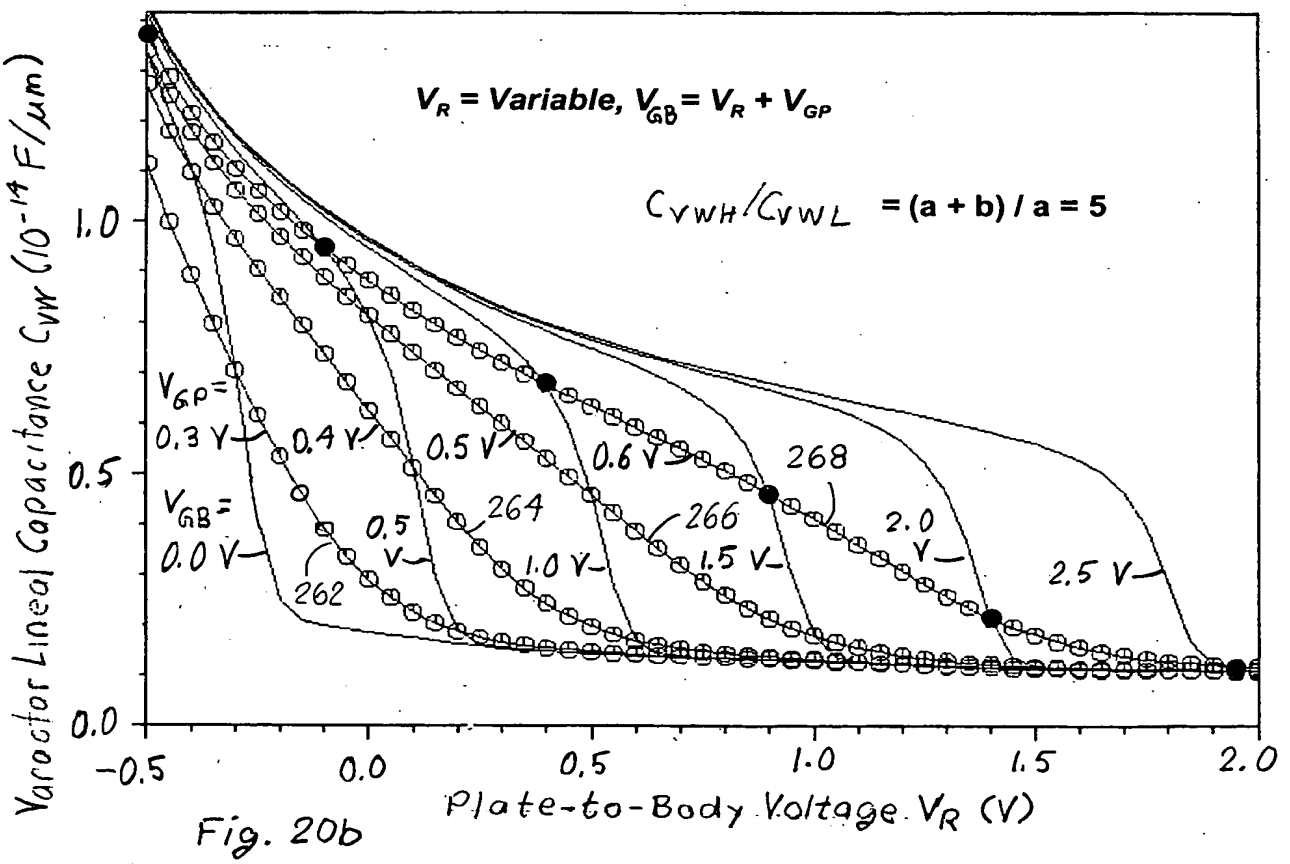


Fig. 20b

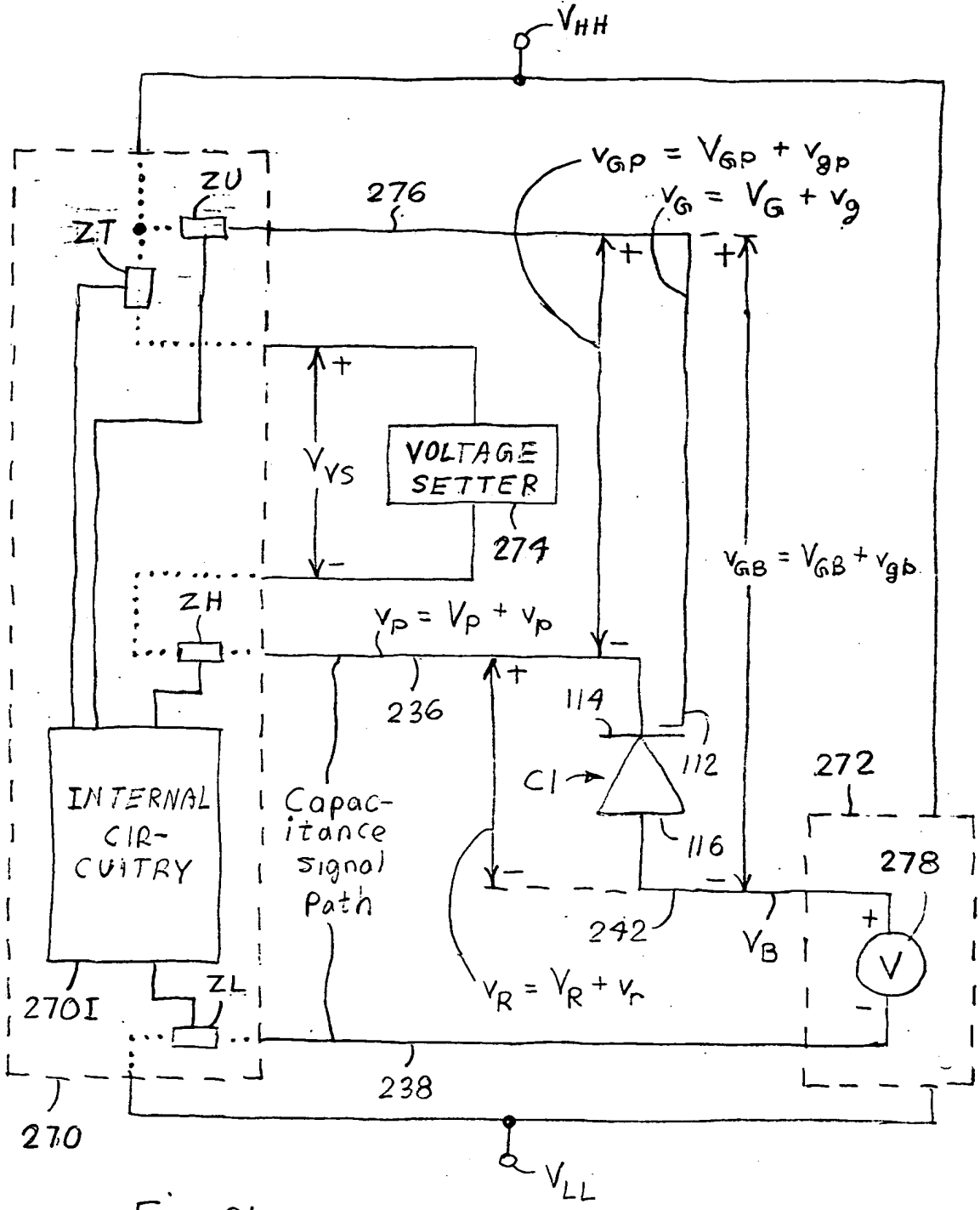

V_{HH}
$V_{GP} = V_{GP} + v_{gp}$
$V_G = V_G + v_g$
ZU
ZT
276
V_{VS}
VOLTAGE SETTER
274
$V_{GB} = V_{GB} + v_{gb}$
ZH
$V_P = V_P + v_p$
236
114
112
C1
272
INTERNAL CIR-CUITRY
Capac-itance signal Path
116
278
242
V_B
V
$V_R = V_R + v_r$
ZL
270I
238
270
V_{LL}

Fig. 21

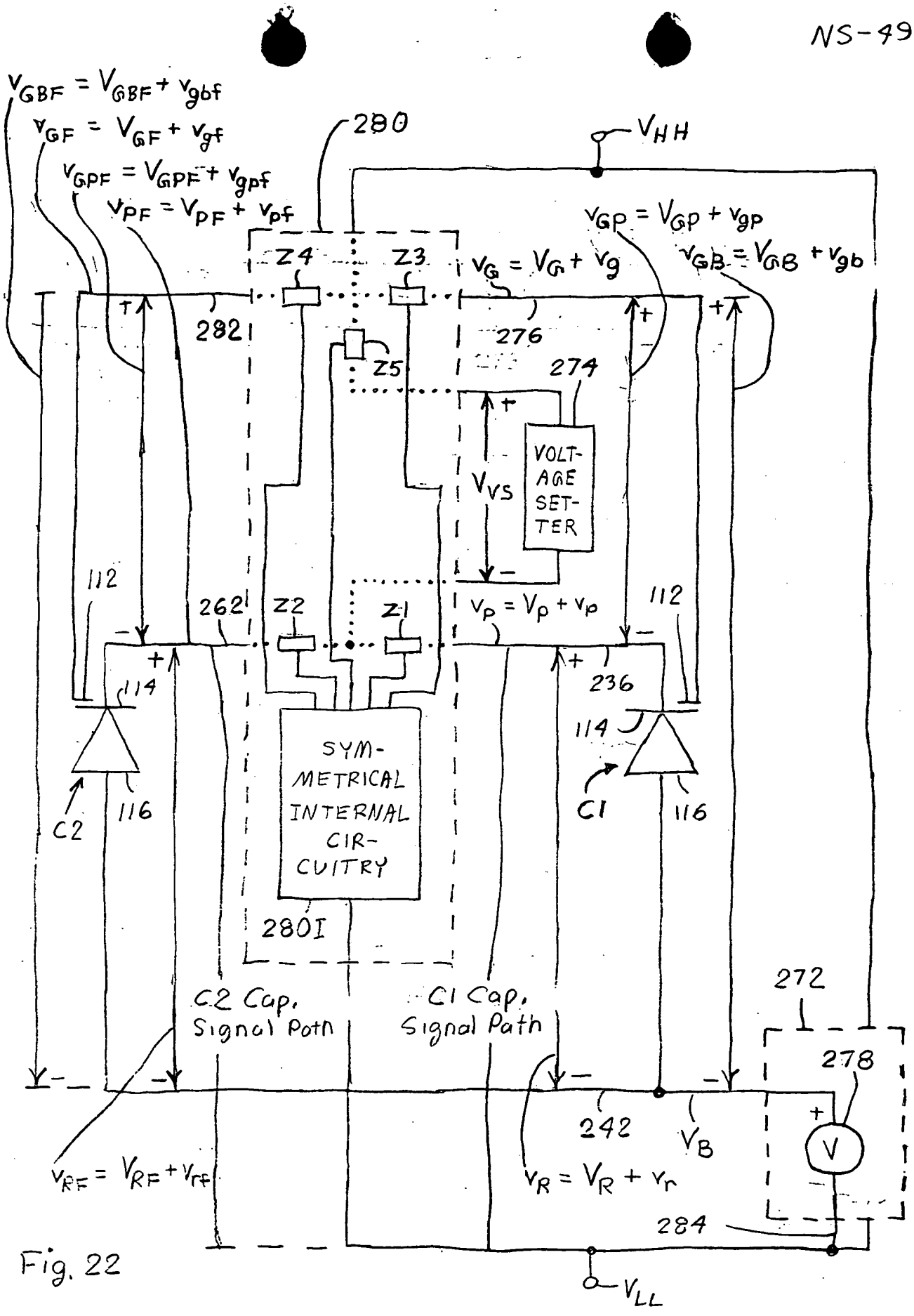

$V_{GBF} = V_{GBF} + v_{gbf}$
$v_{GF} = V_{GF} + v_{gf}$
$v_{GPF} = V_{GPF} + v_{gpf}$
$v_{PF} = V_{PF} + v_{pf}$
280
V_{HH}
$v_{GP} = V_{GP} + v_{gp}$
$v_{GB} = V_{GB} + v_{gb}$
Z4
Z3
$v_G = V_G + v_g$
282
276
Z5
274
VOLT-AGE SET-TER
V_{VS}
112
262
Z2
Z1
$v_P = V_P + v_p$
236
114
SYM-METRICAL INTERNAL CIR-CUITRY
C2
C1
116
280I
C2 Cap. Signal Path
C1 Cap. Signal Path
272
278
242
V_B
V
$v_{RF} = V_{RF} + v_{rf}$
$v_R = V_R + v_r$
284
V_{LL}

Fig. 22

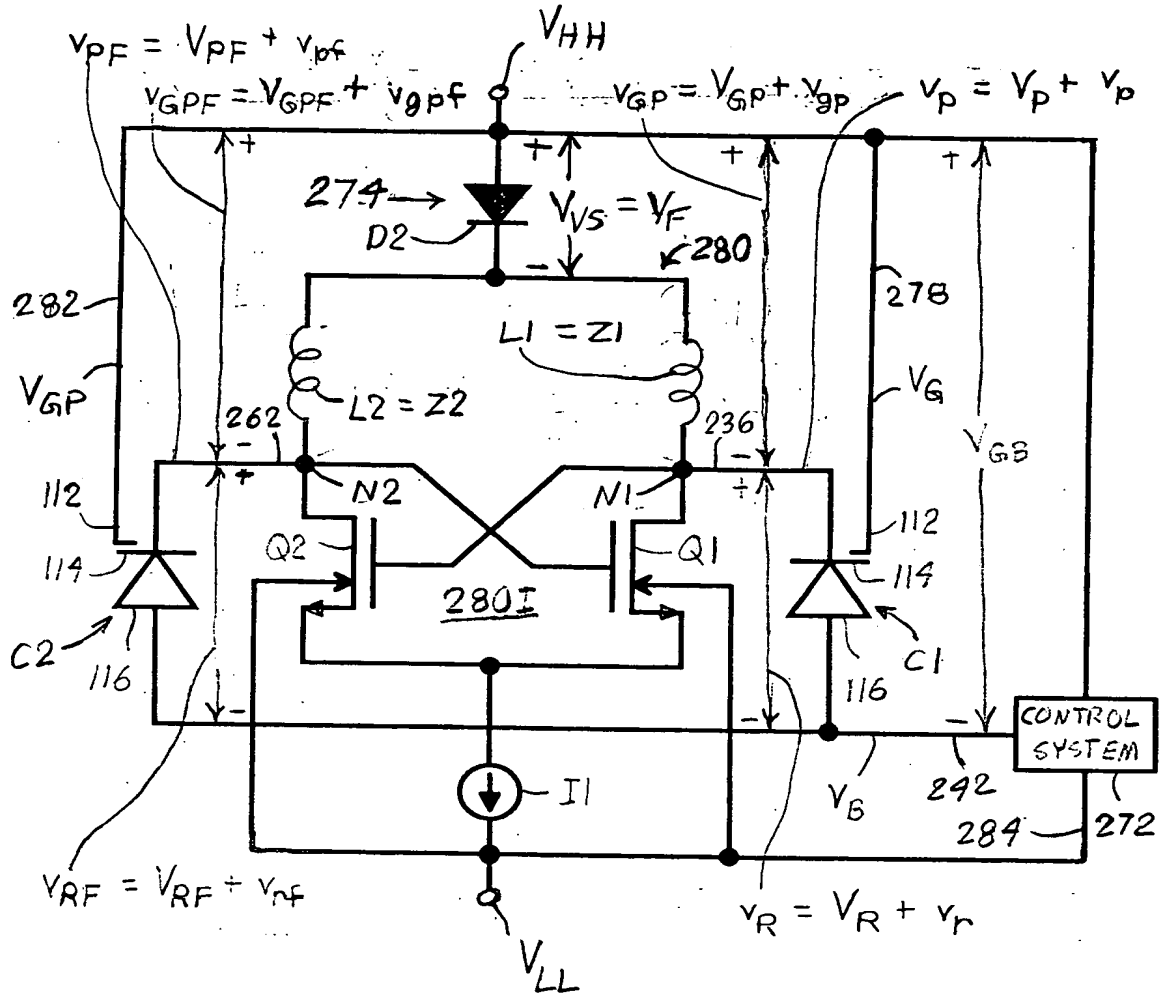

$V_{PF} = V_{PF} + v_{pf}$
V_{HH}
$V_{GPF} = V_{GPF} + v_{gpf}$
$V_{GP} = V_{GP} + v_{gp}$
$V_P = V_P + v_p$
274
D2
$V_{VS} = V_F$
280
282
278
$L1 = Z1$
V_{GP}
$L2 = Z2$
V_G
262
236
V_{GS}
112
N2
N1
112
Q2
Q1
114
114
280I
C2
C1
116
116
CONTROL SYSTEM
I1
V_B
242
284
272
$V_{RF} = V_{RF} + v_{rf}$
$V_R = V_R + v_r$
V_{LL}

Fig. 23a

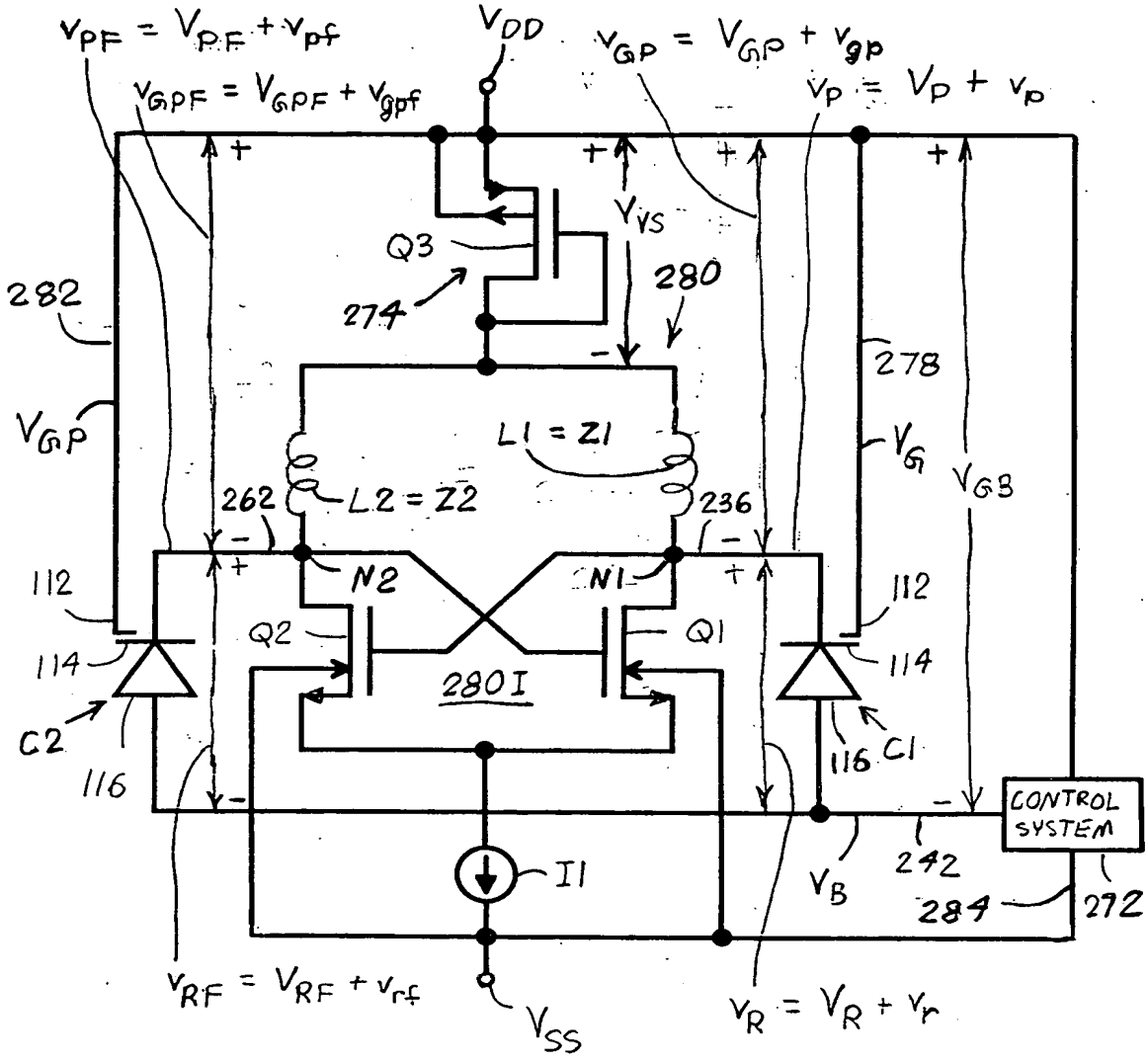

$V_{PF} = V_{PF} + v_{pf}$
V_{DD}
$V_{GP} = V_{GP} + v_{gp}$
$V_P = V_P + v_p$
$V_{GPF} = V_{GPF} + v_{gpf}$
V_{VS}
Q3
274
280
282
278
V_{GP}
L1 = Z1
V_G
V_{GB}
262
L2 = Z2
236
112
N2
N1
112
Q2
Q1
114
114
280I
C2
C1
116
116
CONTROL SYSTEM
I1
V_B
242
284
272
$V_{RF} = V_{RF} + v_{rf}$
V_{SS}
$V_R = V_R + v_r$

Fig. 23b

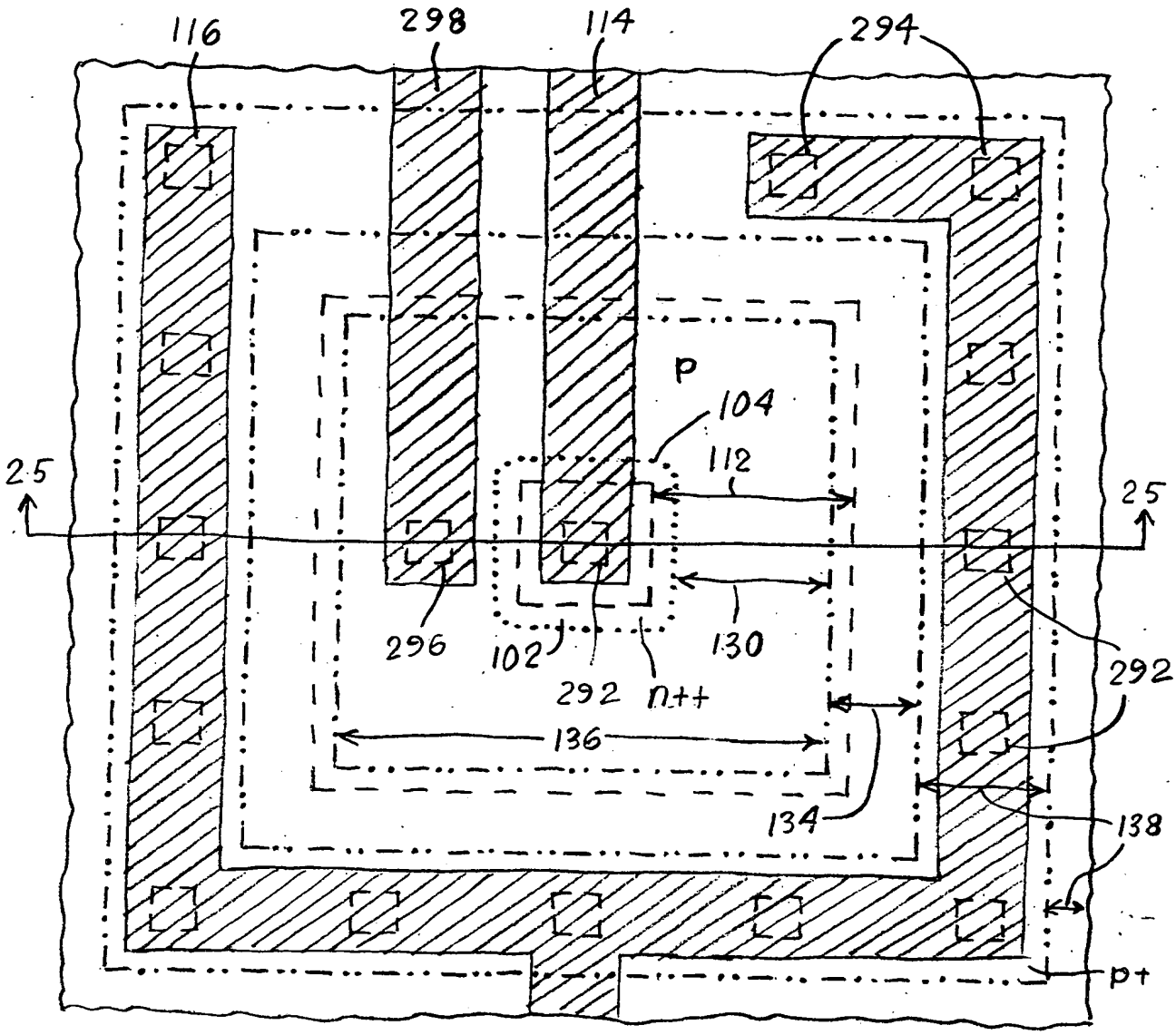

116
298
114
294
25
25
P
104
112
296
102
130
292
n++
136
134
292
138
p+

Fig. 24

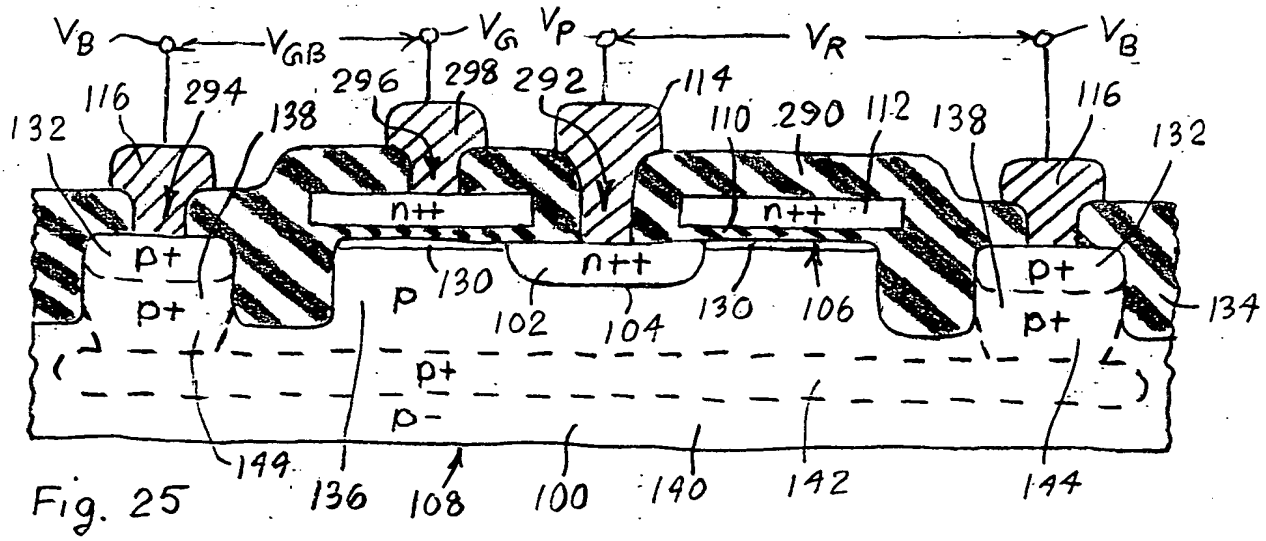

V_B
V_{GB}
V_G
V_P
V_R
V_B
116
294
296
298
292
114
110
290
112
138
116
132
132
138
n++
n++
p+
p+
n++
p+
p+
P
130
102
104
130
106
134
p+
p-
149
136
108
100
140
142
144

Fig. 25

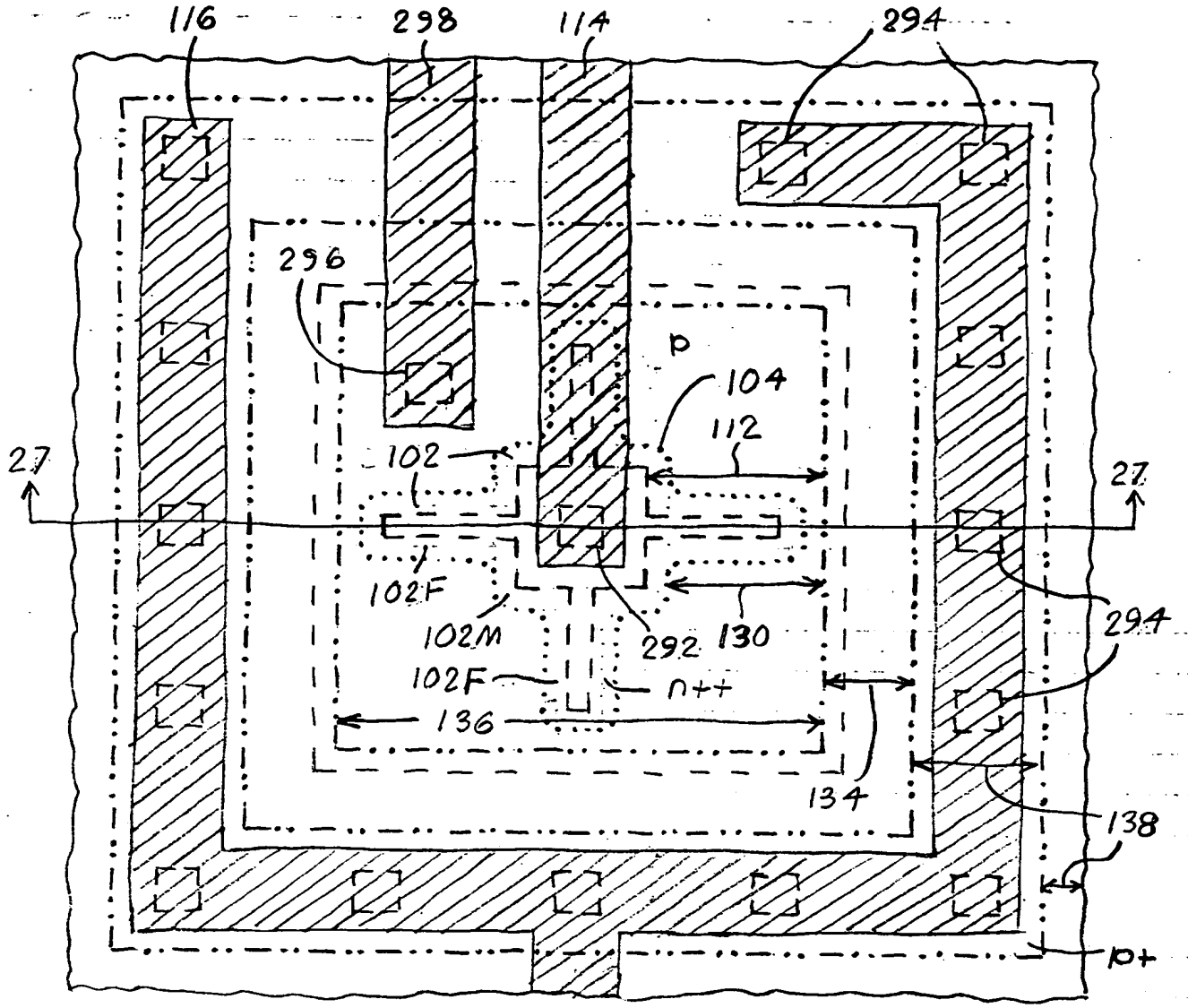

116
298
114
294
296
p
104
112
102
27
27
102F
102M
292
130
294
102F
n++
136
134
138
p+

Fig. 26

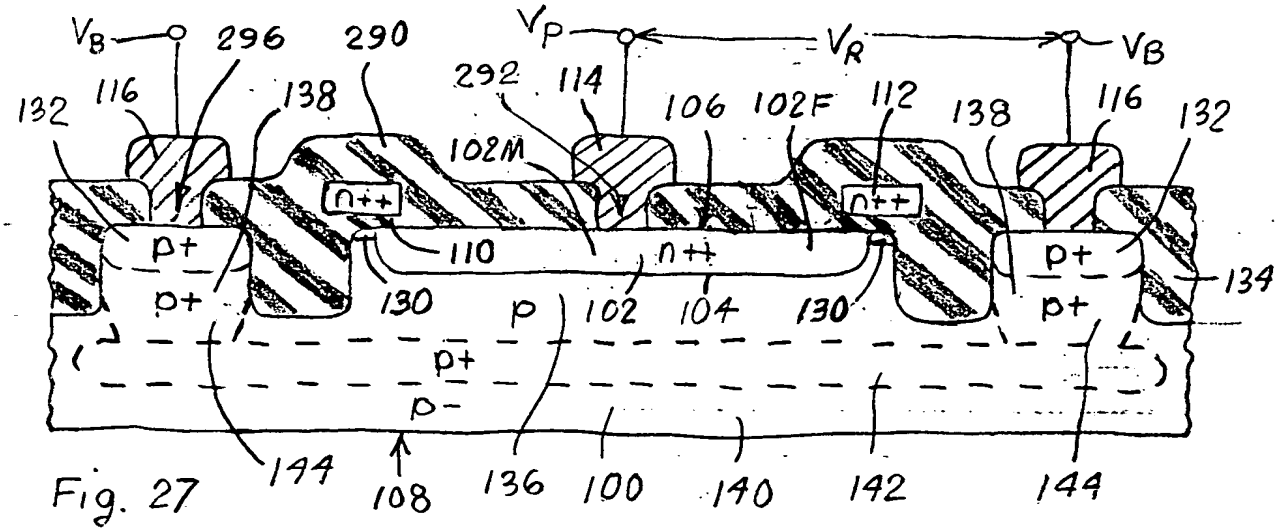

V_B
296
290
V_P
V_R
V_B
132
116
138
292
114
106
102F
112
138
116
132
102M
n++
n++
p+
110
n++
p+
134
p+
130
p
102
104
130
p+
p+
p-
144
108
136
100
140
142
144

Fig. 27